



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/659,006

09/09/2003

Christopher H. Bajorek

004085.P030X

3505

7590

06/20/2006

Daniel E. Ovanezian

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Seventh Floor

12400 Wilshire Boulevard

Los Angeles, CA 90025-1026

EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1732

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Continuation of Attachment(s) 6). Other: PTO-1449 of 1/13/06, 12/1/03, 12/11/03.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. **Claims 1 and 4** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 8 of copending Application No. 10/757,795. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a method for imprinting a stamper into an embossable film at an imprinting temperature, separating, and subsequently cooling after the separating. The Claims are different because instant Claim 1 is silent to the transporting (Claim 8 of the ‘795 application) and to the base structure (Claim 1 of the ‘795 application). However, transporting is a necessary operation in order to imprint upon the film, and would not distinguish the invention. The base structure and film composite is subsequently claimed in instant Claim 4.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 10 and 15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **As to Claim 10**, it is unclear how this claim should be interpreted to be different than Claim 2, upon which it depends. **As to Claim 15**, Claim 14 requires that the first temperature be higher, and Claim 15 contradicts Claim 14 by instead claiming that the resist is at both the second (Claim 14) and first (Claim 15) temperature.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 2, 8, 10-12, 17, 20, and 22** are rejected under 35 U.S.C. 102(b) as being anticipated by Davis (2002/0025408). **As to Claim 1**, Davis teaches a method comprising:
- heating a stamper and a resist film ([0073] and [0074]);
 - imprinting the stamper into the resist film ([0076]);
 - separating the stamper from the resist film ([0076]);
 - cooling the resist film after separating (inherent in that other operations are subsequently performed).

As to Claims 2 and 10, see [0073], [0077], and [0074]. **As to Claim 8**, see [0077]. **As to Claims 11 and 12**, see [0073] and [0074].

As to Claim 17, Davis teaches a method comprising:
heating a stamper and a resist film to a first temperature at least that of a transition temperature of the resist film ([0073] and [0074]);
imprinting the stamper into the resist film ([0076]);
cooling the resist film to a second temperature above room temperature ([0076] and [0078]);
separating the stamper from the resist film ([0076]).

As to Claim 20, see [0077]. **As to Claim 22**, see [0053].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 3-6, 18, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216). Davis teaches the subject matter of Claims 1 and 17 above under 35 USC 102(b). **As to Claim 3**, Davis appears to be silent to the trenches and plateau areas, but Chou teaches trenches and plateaus (Fig. 8). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou into that of Davis a) in order to provide a magnetic material adapted for

Art Unit: 1732

horizontal recording (4:54-64), and b) in order to provide a plurality of discrete elements of magnetic material, and c) because Davis clearly suggests the magnetic materials and method which Chou provides (Davis, par. [0080]). **As to Claim 4**, Chou teaches a substrate (Item 40, Figs. 4A-4D). **As to Claims 5 and 6**, Chou teaches selectively removing the resist film to form a pattern of areas that do not have the resist film thereon (Fig. 4C), and disposing a magnetic layer in the areas that do not have the resist film (Fig. 4D, Item 48). **As to Claim 18**, Chou teaches a substrate (Item 40, Figs. 4A-4D). **As to Claim 19**, Chou teaches selectively etching the resist film to form areas above the base that do not have the resist film thereon (Fig. 4C) and disposing a magnetic layer above the base layer in the areas that do not have the resist film (Fig. 4D).

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216), and further in view of Chou (USPN 6309580). Davis and Chou ('216) teach the subject matter of Claim 5 above under 35 USC 103(a). **As to Claim 7**, Davis and Chou ('216) appear to be silent to the deliberate etching of the base structure using the patterned resist film. However, Chou ('580) teaches that recesses may be formed in the substrate (Fig. 8 and 10:41-51) using a patterned resist film produced by imprinting (Figs. 1A-1D). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou ('580) into that of Davis because Davis suggests application of material into the spaces between the resist, and because doing so would mechanically secure the deposited material into the substrate, rather than to the surface.

6. **Claims 9 and 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view Faircloth (J. Vac. Sci. Technol. B, Vol. 18, Num. 4, Jul/Aug 2000). Davis teaches the subject matter of Claims 1 and 17 above under 35 USC 102(b). **As to Claims 9 and 21**, Davis appears to be silent to the multilayer resist. However, Faircloth teaches that bilayer resists are conventional in nanoimprint lithography (see the entire document). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Faircloth into that of Davis because single layer resists are known to be problematic, and because doing so would provide higher resolution arrays of particles, lines, and crosshatches (Faircloth, right column).

7. **Claims 13-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408). Davis teaches the subject matter of Claim 12 above under 35 USC 102(b). **As to Claim 13**, Davis does not explicitly teach the “close proximity”, however, it would have been prima facie obvious to keep the stamper in close proximity to the resist film in order to avoid heat loss during transfer. **As to Claim 14**, Davis appears to be silent to the exact temperatures. However, firstly Davis clearly recognizes that the particular temperatures of the stamper and resist represent result effective variables that the ordinary artisan would have optimized ([0073] and [0074]). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Additionally, Davis suggests that the substrate (and resist) be heated to about 5 C above the glass transition temperature, and that the stamper should be within about 30 C over the glass transition temperature ([0073] and [0075]). **As to Claim 15**, Davis clearly teaches the

Art Unit: 1732

resist and mold both be heated to a temperature very close to or at the glass transition temperature. As to **Claim 16**, Davis also teaches an embodiment wherein the resist is at a temperature slightly above the glass transition temperature, and the stamper is slightly below the temperature of the resist ([0073] and [0075]).

8. **Claims 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216), Chou (USPN 6309580), and Chen (USPN 4786564). Davis, Chou ('216), and Chou ('580) teach the subject matter of Claim 7 above under 35 USC 103(a). As to **Claim 23**, Chou ('580) teaches removing the resist film (10:3-24) wherein a pattern of raised zones and recessed zones is formed in the base structure, but Davis, Chou ('216) and Chou ('580) appear to be silent to a continuous layer. However, Chen teaches a continuous layer which is provided as protection for the underlying alloy (7:67-8:7). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chen into that of Davis in order to provide a hard layer to protect the delicate magnetic structure. As to **Claim 24**, Davis teaches a thermoset resist ([0053]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:30 pm.

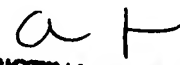
Art Unit: 1732

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 6/15/06




CHRISTINA JOHNSON
PRIMARY EXAMINER
6/15/06